Hotwire® ReachDSL® Modem Model 6350-A4 Installation Instructions

Document Number 6350-A2-ZN12-30

December 2005

Contents

End User License Agreement (Zhone and Affiliates) 2
Trademarks 3
Package Checklist 4
Wiring and Cables You May Need (not supplied) 4
Installing Additional Phone Filters 5
Installing the Hotwire 6350 ReachDSL Modem 6
Optional ReachDSL Modem Wall Placement 8
Status LEDs 10
Troubleshooting 11
Increasing the Number of End-User Systems 12
Cables and Connectors 12
Technical Specifications for Hotwire 6350 ReachDSL Modem 14
Important Safety Instructions 15
Compliance 16
Government Requirements 18
Contacting Global Service and Support 20
Technical Support 20
Service Requirements 20

End User License Agreement (Zhone and Affiliates)

Do not install this Software unless you agree to these provisions.
Return the Software promptly for a refund if you do not agree.

License. Zhone Technologies, Inc. and/or an affiliate ("Zhone") hereby grants you ("User")—either an individual or a single business entity—the non-exclusive right to install, access, run, or inter. act with ("Use") one copy of the enclosed software (which may have been, or may be, provided on media, as part of a hardware platform, through download, or otherwise) and associated documentation ("Software") on the first computer system on which User installs the Software ("System") solely for internal business purposes (including, without limitation, providing products and services to User's customers) and subject to the restrictions below). Zhone may, in its sole discretion, make available future updates or upgrades to the Software each of which is also Software subject hereto. Title to and all patent rights, copyrights and other intellectual property rights in the Software are retained by Zhone and its direct and indirect suppliers and licensors ("Licensors").

Restrictions. The Software may not be (a) Used on or from any system other than the System; (b) Used with more than any maximum number of subscribers stated in the documentation accompanying the Software; (c) Used so as to circumvent any technological measure included therein or provided by Zhone from time to time to control access to or limit use of the Software; (d) sublicensed, rented, leased or lent to third parties; (e) imported or exported into any jurisdiction except in compliance with all applicable laws of the United States and such jurisdiction; (f) transferred to a third party unless (A) User transfers the original and all surviving copies to a third party who has agreed in writing to be bound hereby and (B) such third party pays to Zhone such reasonable additional fee as Zhone may impose from time to time with respect to such transfer; or (g) made available to third parties as part of any time-sharing or service bureau arrangement. User shall not have the right to use the Software or any portion thereof for a use other than that contemplated by its documentation. User will not copy all or any part of the Software or attempt, or encourage or permit any third party, to modify, adapt, make derivative works from, reverse engineer, reverse compile, disassemble or decompile the Software or any portion thereof except and only to the extent that such activity is expressly permitted by law notwithstanding this limitation. Violation of any of the foregoing shall be deemed a material breach hereof. User may make a reasonable number of copies solely for archival or disaster recovery and subject to the restrictions imposed by copyright law, but may not modify or otherwise copy the Software. User agrees to reproduce product identification, copyright and other proprietary notices of Zhone and Licensors on all copies. User's rights are only as expressly stated herein. Zhone may immediately terminate your rights if you violate the provisions hereof.

Limited Warranty. Zhone warrants that the media containing the Software is free from defects in material and workmanship for ninety (90) days following your purchase of the Software. You may provide written notice of such defect (addressed to Zhone Technologies, Inc., Attention: Customer Service, 7001 Oakport Street @ Zhone Way, Oakland, CA 94621) no later than ten (10) days following expiration of such period and, as your sole and exclusive remedy, Zhone will provide replacement media. NEITHER ZHONE NOR ITS LICENSORS MAKE ANY OTHER WARRANTY, EXPRESS, IMPLIED OR STATUTORY. ZHONE AND ITS LICENSORS

DISCLAIM ALL WARRANTIES OF FITNESS FOR PARTICULAR PURPOSE, MERCHANTABILITY AND NON-INFRINGEMENT. Some states or other jurisdictions do not allow the exclusion of implied warranties on limitations on how long an implied warranty lasts, so the above limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from one state or jurisdiction to another.

Limit of Liability. In case of any claim hereunder or related to the Software, neither Zhone nor its Licensors shall be liable for direct damages exceeding the price paid by User for the Software or for special, incidental, consequential or indirect damages, even if advised in advance of the potential thereof.

U.S. Government Users. The Software is a "commercial item" as defined at 48 C.F.R. 2.101, consisting of "commercial computer software" and "commercial computer software documentation" as such terms are used in 48 C.F.R. 12.212. Under 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 to 227.7202-4, U.S. Government Users acquire the Software only with the rights set forth therein.

Third Party Licensors. This Zhone End User License Agreement may be accompanied by differing or additional provisions applicable to portions of the Software provided by one or more Licensors ("Licensor Provisions"). User acknowledges and agrees that its Use of such portions of the Software is subject to the Licensor Provisions.

Trademarks

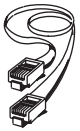
Hotwire, MVL, and ReachDSL are registered trademarks of Zhone Technologies. All other products and services mentioned herein are the trademarks, service marks, registered trademarks, or registered service marks of their respective owners.

Package Checklist

Verify that your package contains the following:

Hotwire 6350
ReachDSL® Modem

Power cord with power transformer

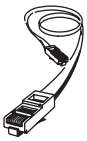


DSL interface cable with RJ11 connectors

Wiring and Cables You May Need (not supplied)

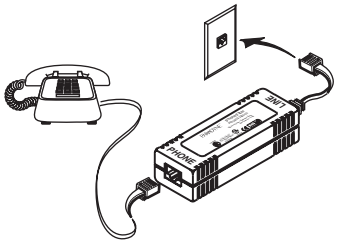
The following standard cables and connectors can be used with this product:

Standard RJ11 (or RJ14) wall jack for the DSL cabling



Ethernet 8-pin straight-through or cross-over cable

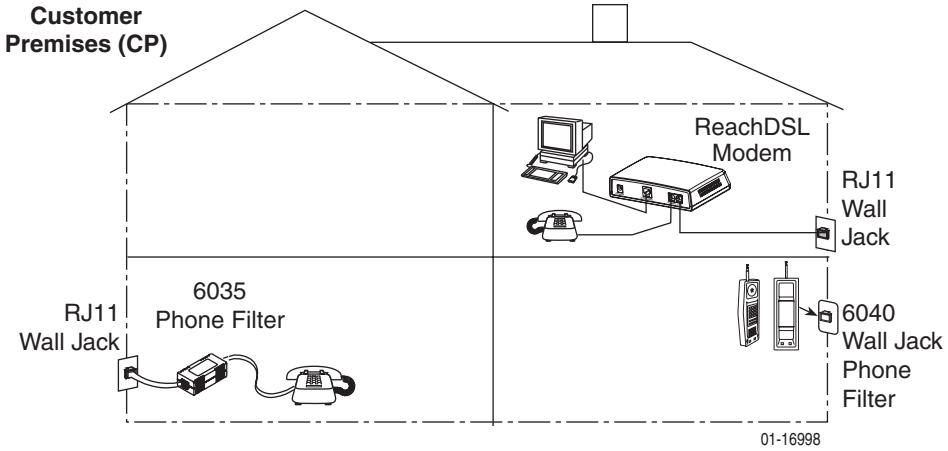
Installing Additional Phone Filters



A phone filter is recommended to minimize background noise during a phone conversation on telephones not connected directly to the Hotwire 6350 ReachDSL Modem. If additional telephones in your home or business share the same phone line with the ReachDSL modem, install one phone filter on each telephone.

There are two Hotwire phone filters available:

- Hotwire 6035 Universal Phone Filter is designed for use with a tabletop phone.
- Hotwire 6040 Wall Jack Phone Filter is designed for use with a wall phone.



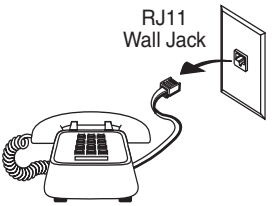
Contact your sales or service representative to order Hotwire phone filters.

Installing the Hotwire 6350 ReachDSL Modem

Place the Hotwire 6350 ReachDSL Modem on a flat surface with clearance for the rear connectors.

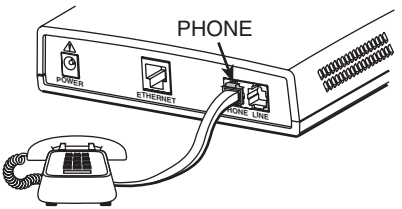
▶ Procedure

1 **UNPLUG TELEPHONE.** If a telephone is connected at the RJ11 wall jack where the ReachDSL modem will be installed, unplug the telephone line from the wall jack.

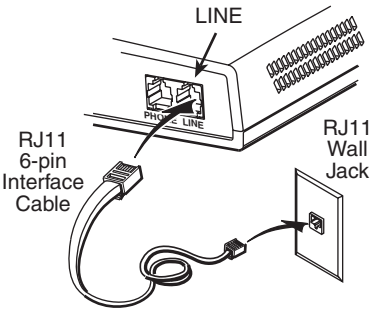


2 **CONNECT A TELEPHONE.**
(Optional – go to Step 3 if you are not connecting a telephone to the modem.)

Plug the existing telephone interface cable that was unplugged in Step 1 into the jack labeled PHONE.



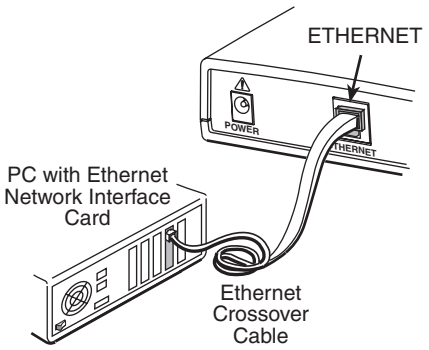
3 **CONNECT DSL LINE.** Use the supplied RJ11 6-pin interface cable for the ReachDSL line connection. Insert one end of the cable into the jack labeled LINE. Insert the other end of the cable into the RJ11 wall jack.



4 **CONNECT TO PC OR ETHERNET HUB.** Use an 8-pin Ethernet cable (crossover or straight-through) for the Ethernet connection. Insert one end of the cable into the jack labeled ETHERNET.

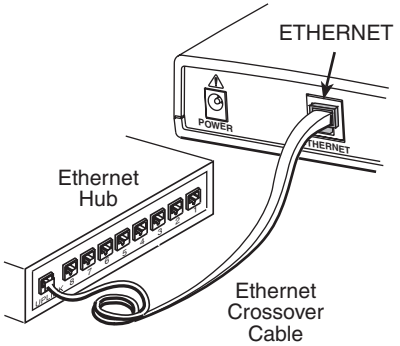
Connect to one of the following:

— **PC.** Use an Ethernet crossover cable and connect the other end to a PC with an Ethernet Network Interface Card (NIC) installed.



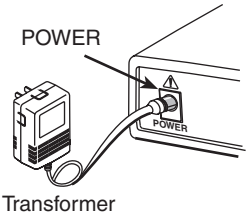
– or –

— **Ethernet Hub.** Use an Ethernet crossover cable and connect the other end to an Ethernet hub's Uplink port. (To connect to a hub's standard port, use an Ethernet straight-through cable).



5 **CONNECT TO POWER.** Insert the supplied power cord's round end into the jack labeled POWER. Plug the transformer into an AC outlet.

When the power cord is installed, the ReachDSL modem goes through a power-on self-test.



The ReachDSL modem hardware installation is now complete.

For More Information

For more information about the Hotwire DSL systems, visit **www.zhone.com**.

Optional ReachDSL Modem Wall Placement

The Hotwire 6350 ReachDSL Modem is designed for tabletop placement. The modem can also be mounted on a wall. To mount the modem, you will need:

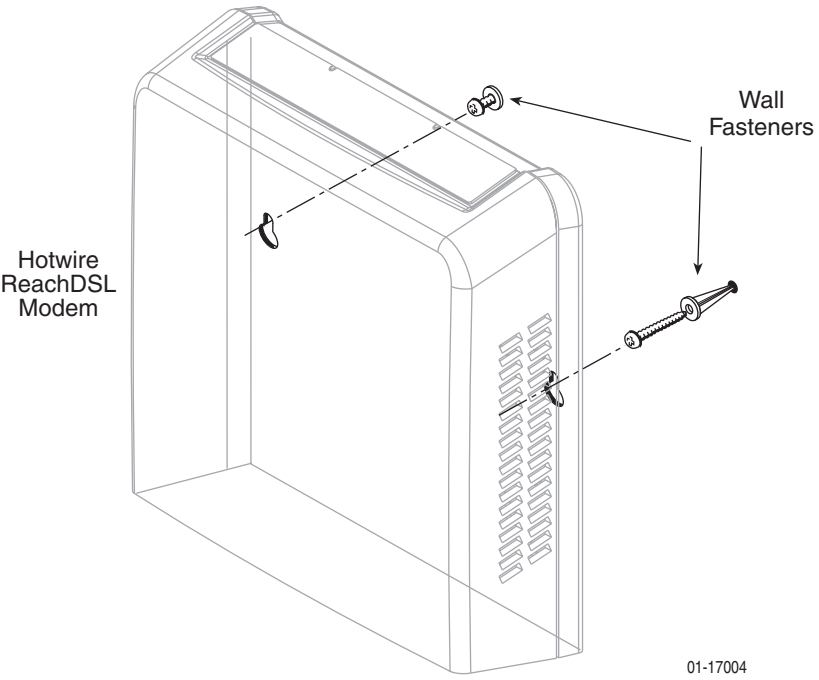
- q Two slotted-head #6 self-threading screws with plastic anchors
- q Drill and 3/16" drill bit for the plastic anchors
- q Screwdriver

A template with the dimensions for the two screws is provided. See *ReachDSL Modem Hardware Template* on page 9.

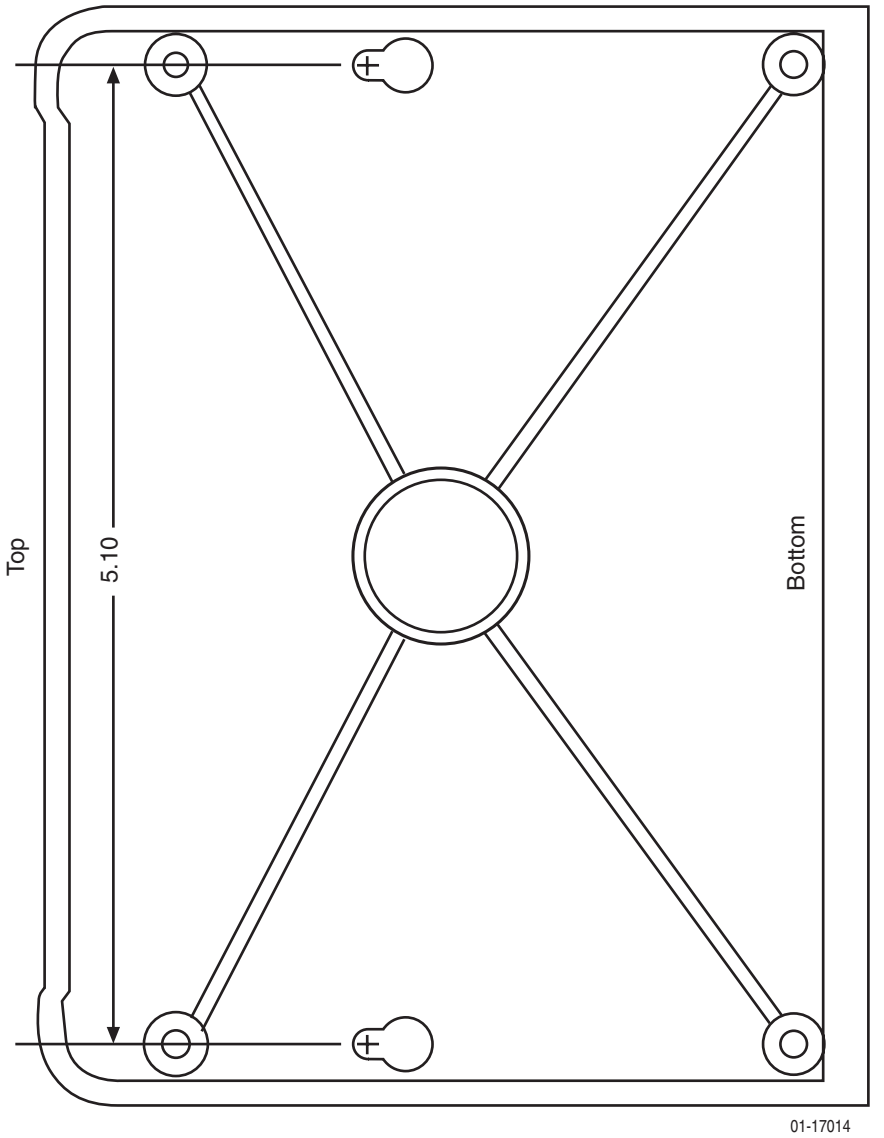
▶ Procedure

To mount the Hotwire 6350 ReachDSL Modem:

1. Use a drill to install the plastic anchors.
2. Use a screwdriver to install the screws. Do not install the screws flush with the wall. Leave enough clearance to hang the modem housing from the screws.

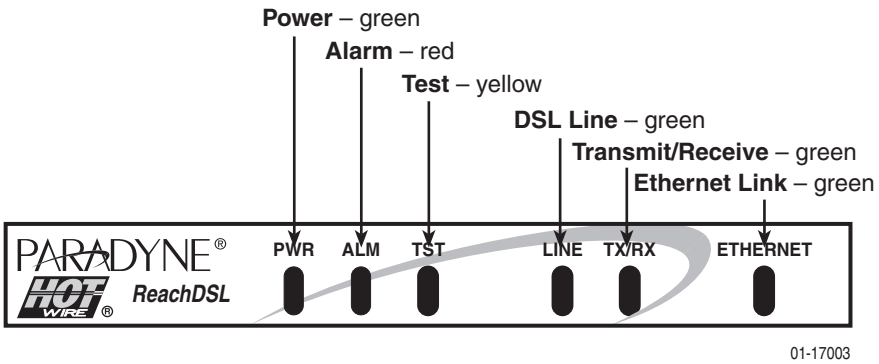


ReachDSL Modem Hardware Template



Status LEDs

When power is applied, the ReachDSL modem performs self-diagnostics and the PWR LED is on. The self-diagnostics include a power-on self-test during which all of the LEDs turn on for one second.



All of the LEDs turn on and off during the power-on self-test. After a successful self-test, the LEDs should appear as indicated in **BOLD** in the Condition column below.

LED	Condition	Status
PWR	ON	ReachDSL modem has power.
ALM	OFF ON	No active alarms. An alarm condition exists.
TST	OFF ON	No active tests. The TST LED is on during the power-on self-test and during a test initiated by the service provider.
LINE	**ON** OFF	The DSL link is active and ready to transmit and receive data. The DSL link has not been established.
TX/RX	ON OFF	Data transmission is in progress on the DSL line. The modem is not transmitting or receiving data.
ETHERNET	**ON** OFF	The Ethernet connection to the Ethernet hub or PC is active. No Ethernet 10BaseT device is detected.

Troubleshooting

LED Symptom	Action
All LEDs are on.	If LEDs remain on after ten minutes, the modem is not functional. Contact the service provider.
ALM LED remains on.	The power-on self-test may have failed. Unplug the unit and reapply power. If the alarm LED is still on, contact the service provider.
ALM and TST LEDs are blinking.	Firmware download may be in progress. If firmware download is not in progress or the LEDs continue blinking after ten minutes, contact the service provider.
Ethernet LED is off.	Verify that the Ethernet cable is securely installed at both ends, and at least one PC is connected and powered on.
	Verify that the correct straight-through or crossover cable is installed. Refer to *Cables and Connectors* on page 12.
LINE LED is off.	Verify that the DSL LINE cable is securely installed on both ends. If the problem continues, contact the service provider.
	Verify that the line has dial tone. If there is no dial tone, contact the service provider.
LINE LED is on and there is no data transmission.	The DSL link has been established but there is no data transmission. Verify the Ethernet connection. If the problem persists, contact the service provider.
LINE and Ethernet LEDs are on and there is no data transmission.	The DSL and Ethernet links have been established but there is no data transmission. If the problem continues, contact the service provider.
PWR LED is off.	Check that the power cord is securely installed on both ends.
	If no LEDs are on, the power supply may be defective. Test the outlet to verify power. If the problem persists, contact the service provider.
	If other LEDs are on, the PWR LED may be burned out. Unplug the unit and reapply power; watch all LEDs during the power-on self-test to verify if the PWR LED is functioning.
TST LED is on.	A test initiated by the service provider may be active. Wait five minutes. If the TST LED does not go off, contact the service provider.

To improve data transmission throughput and minimize background noise during a telephone conversation, make sure that:

- The Hotwire 6350 ReachDSL Modem is always powered on, even when not in use, and
- A Hotwire phone filter is installed on every telephone on the same line as the Hotwire 6350 ReachDSL Modem.

Increasing the Number of End-User Systems

A single end-user system is attached to the Hotwire 6350 ReachDSL Modem by using an Ethernet crossover cable. To increase the number of end-user systems, connect all the PCs to an Ethernet hub using a straight-through cable.

The Hotwire ReachDSL port card supports 32 hosts/subnets per DSL port and the Hotwire ReachDSL Modem supports up to 256 MAC entries.

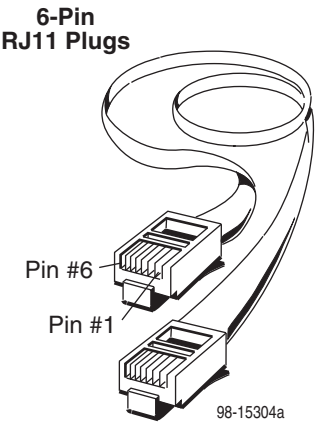
Cables and Connectors

Standard twisted-pair CAT3 or better cables are recommended.

- The LINE and PHONE interface connectors use 6-pin, non-keyed modular plugs. RJ11 or RJ14 6-pin connectors can be used.

Line & Phone Connectors

Pin #	Function
1	Not used
2	Ring 2 (optional)
3	DSL Ring 1
4	DSL Tip 1
5	Tip 2 (optional)
6	Not used



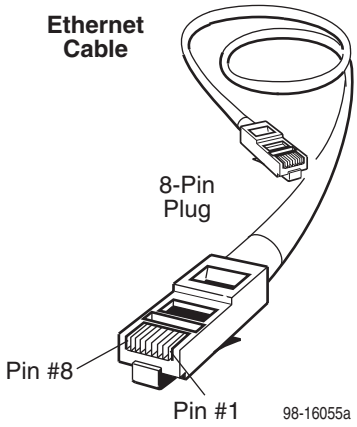
- The LINE and PHONE jack pinouts are either filtered or unfiltered for POTS.

PHONE Jack Pinouts		LINE Jack Pinouts	
Pin # 3, 4	Filtered for POTS	Pin # 3, 4	DSL and POTS
Pin # 2, 5	2nd POTS unfiltered	Pin # 2, 5	2nd line pass-through

- The Ethernet interface connector uses an 8-pin, non-keyed modular plug.
  - — To connect the DSL modem to an Ethernet hub, use the straight-through connection.

8-Pin Straight-through Connection

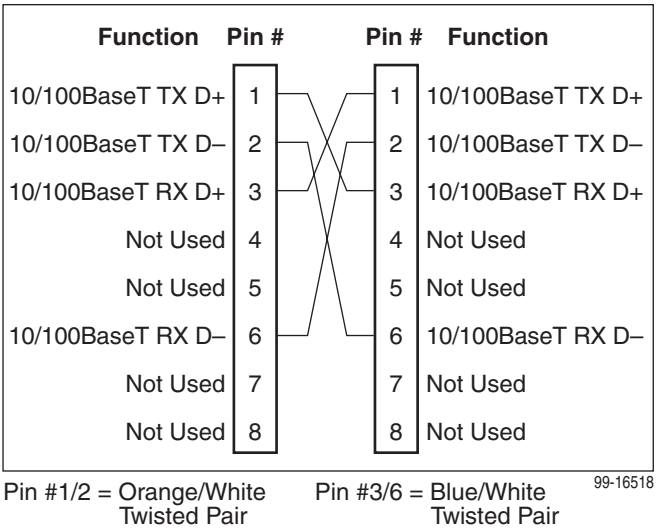
Pin #	Function
1	10BaseT TX D+
2	10BaseT TX D–
3	10BaseT RX D+
4 & 5	Not used
6	10BaseT RX D–
7 & 8	Not used



–or–

- — To connect the DSL modem directly to a PC with an Ethernet NIC card, use an Ethernet crossover cable.

8-Pin Ethernet Crossover Cable



Pin #1/2 = Orange/White Twisted Pair

Pin #3/6 = Blue/White Twisted Pair

Technical Specifications for Hotwire 6350 ReachDSL Modem

Item	Specification*
Height x Width x Depth	3.71 cm x 14.54 cm x 11.00 cm (1.46" x 5.72" x 4.33")
Weight	0.20 kg (0.45 lb.)
Power Class 2 Transformer normal service input voltage range	 Input: 100 VAC (±10%), 50 Hz; 120 VAC (±10%), 60 Hz; or 230 VAC (±10%), 50/60 Hz Output: 5 VDC nominal, minimum 0.6A (SELV)
Approvals FCC Part 15 CISPR 22 Other Certifications	 Class B digital device Class B Refer to equipment's label for approvals on product
Physical Environment Operating temperature Storage temperature Relative humidity Shock and vibration	 0°C to 40°C (32°F to 104°F) –30°C to 70°C (–22°F to 158°F) 5% to 95% (noncondensing) Withstands normal shipping and handling
Heat Dissipation	2.35 watts at 5.0 VDC (nominal input voltage)
Interface Connectors Line Interface Ethernet Type II Frame	 RJ11 or RJ14 6-pin 10BaseT 8-pin

***** Technical Specifications subject to change without notification.

⚠ Important Safety Instructions

1. Read and follow all warning notices and instructions marked on the product or included in the manual.
2. Slots and openings in the cabinet are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, these slots and openings must not be blocked or covered.
3. Do not allow anything to rest on the power cord and do not locate the product where persons will walk on the power cord.
4. Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous high voltage points or other risks. Refer all servicing to qualified service personnel.
5. General purpose cables are used with this product for connection to the network. Special cables, which may be required by the regulatory inspection authority for the installation site, are the responsibility of the customer. Use a UL Listed, CSA certified, minimum No. 24 AWG line cord for connection to the Digital Subscriber Line (DSL) network.
6. When installed in the final configuration, the product must comply with the applicable Safety Standards and regulatory requirements of the country in which it is installed. If necessary, consult with the appropriate regulatory agencies and inspection authorities to ensure compliance.
7. A rare phenomenon can create a voltage potential between the earth grounds of two or more buildings. If products installed in separate buildings are **interconnected**, the voltage potential may cause a hazardous condition. Consult a qualified electrical consultant to determine whether or not this phenomenon exists and, if necessary, implement corrective action prior to interconnecting the products.
8. Input power to this product must be provided by one of the following: (1) a UL Listed/CSA certified power source with a Class 2 or Limited Power Source (LPS) output for use in North America, or (2) a certified transformer, with a Safety Extra Low Voltage (SELV) output having a maximum of 240 VA available, for use in the country of installation.
9. In addition, since the equipment is to be used with telecommunications circuits, take the following precautions:
   - — Never install telephone wiring during a lightning storm.
   - — Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
   - — Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
   - — Use caution when installing or modifying telephone lines.
   - — Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
   - — Do not use the telephone to report a gas leak in the vicinity of the leak.

Compliance

CE Marking

When the product is marked with the CE mark on the equipment label, this demonstrates full compliance with the following European Directives:

- **Directive 73/23/EEC** – Council Directive of 19 February 1973 on the harmonization of the laws of the member states relating to electrical equipment designed for use within states relating to electrical equipment designed for use within certain voltage limits, as amended by Directive 93/68/EEC.
- **Directive 89/336/EEC** – Council Directive of 3 May 1989 on the approximation of the laws of the member states relating to Electro-Magnetic Compatibility (EMC), as amended by Directive 93/68/EEC.

⚠ CANADA – EMI NOTICE:

This Class B digital apparatus meets all requirements of the Canadian interference-causing equipment regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du règlement sur le matérial brouilleur du Canada.

Japan – Notices

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＢ情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

This is a Class B product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

Declaration of Conformity

This Declaration of Conformity is made by Paradyne Corporation pursuant to Parts 2 and 15 of the Federal Communications Commission's Rules. This compliance information statement pertains to the following products:

Trade Name:Hotwire
Model Number:6350-A4-200

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The name, address, and telephone number of the responsible party is given below:

Zhone Technologies, Inc.
@ Zhone Way
7001 Oakport Street
Oakland, CA 94621
USA

The authority to operate this equipment is conditioned by the requirement that no modifications will be made to the equipment unless the changes or modifications are expressly approved by Paradyne Corporation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

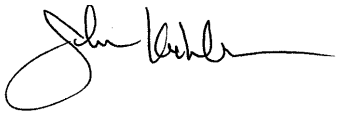
Supplier's Declaration of Conformity

Place of Issue:Paradyne Corporation (now Zhone Technologies, Inc.)
8545 126th Avenue North
Largo, FL 33773-1502
USA

Date of Issue:8/17/2001

Paradyne Corporation, located at the above address, hereby certifies that the Hotwire® ReachDSL® Model Number 6350-A4-200, bearing labeling identification number US:AW2DL03B6350-A4 complies with: the Federal Communications Commission's ("FCC") Rules and Regulations 47 CFR Part 68, the Administrative Council on Terminal Attachments ("ACTA")-adopted technical criteria TIA/EIA/IS-968, "Telecommunications – Telephone Terminal Equipment – Technical Requirements for Connection of Terminal Equipment To the Telephone Network, July 2001," and TIA/EIA/IS-883, "Telecommunications – Telephone Terminal Equipment – Supplemental Technical Requirements for Connection of Stutter Dial Tone Detection Devices and ADSL Modems to the Telephone Network, June 2001."

John Koehler
Senior Vice President, DSL Products and Worldwide Services



Government Requirements

Certain governments require that instructions pertaining to connection to the telephone network be included in the installation and operation manual. Specific instructions are listed in the following sections.

United States – Notice to Users of the Telephone Network

1. This equipment complies with Part 68 of the FCC rules. On the equipment is a label that contains, among other information, the FCC approval number which includes the Ringer Equivalence Number (REN) for this equipment. The label is located on the bottom of your modem.
2. The Hotwire 6350 ReachDSL Modem connects to the Public Switched Telephone Network (PSTN) using the Universal Service Order Code (USOC) RJ11C or RJ14C.
3. The REN is used to determine the quantity of devices which may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total RENs, contact the telephone company to determine the maximum RENs for the calling area.
4. If the modem causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.
5. The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone

company will provide advance notice in order for you to make the necessary modifications in order to maintain uninterrupted service.

6 If you experience trouble with this equipment, please contact your sales or service representative (as appropriate) for repair or warranty information. If the product needs to be returned to the company service center for repair, contact them directly for return instructions using one of the methods listed under *Technical Support* on page 20.

If the trouble is causing harm to the telephone network, the telephone company may request that you remove the equipment from the network until the problem is resolved.

7 The user is not authorized to repair or modify the equipment.

8 This equipment cannot be used on public coin service provided by the telephone company. Connection to Party Line Service is subject to state tariffs. (Contact the state public utility commission, public service commission or corporation commission for information.)

9 An FCC compliant telephone cord with modular plugs may be provided with this equipment. This equipment is designed to be connected to the telephone network or premises wiring using a compatible modular jack which is Part 68 compliant.

Notice to Users of the Canadian Telephone Network

The Industry Canada label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CAUTION:

Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.

If your equipment is in need of repair, refer to *Contacting Global Service and Support* on page 20.

Contacting Global Service and Support

Contact Global Service and Support (GSS) if you have any questions about this or other Zhone products. Before contacting GSS, make sure you have the following information:

- Zhone product you are using
- System configuration
- Software version running on the system
- Description of the issue

Technical Support

If you require assistance with the installation or operation of your product, or if you want to return a product for repair under warranty, contact GSS. The contact information is as follows:

E-mail	support@zhone.com
Telephone (North America)	877-ZHONE20
Telephone (International)	510-777-7133
Internet	www.zhone.com/support

If you purchased the product from an authorized dealer, distributor, Value Added Reseller (VAR), or third party, contact that supplier for technical assistance and warranty support.

Service Requirements

If the product malfunctions, all repairs must be performed by the manufacturer or a Zhone-authorized agent. It is the responsibility of users requiring service to report the need for service to GSS.

6350-A2-ZN12-30

Copyright © 2005 Zhone Technologies, Inc.